# TROPICAL RAINFALL MEASURING MISSION

**January 26, 1998 - February 1, 1998**
**DOY 026 - 032**

## TRMM MISSION OPERATIONS

- The next Delta-V maneuvers are scheduled for February 4 and 15, 1998.
- Delta V on Feb. 4th burn times are scheduled for 17:49z and 1835z (12:49 and 1:35 pm EST).
- TRMM is flying in the -X direction.
- Next yaw maneuver is February 27, 1998.
- Final Database was made operational January 26, 1998.
- Beta angle range for the week of February 2 - February 8 is -10° to -38°.
- Reached orbit 1000 Day 030 at 08:16z.

## TRMM SUBSYSTEM OPERATIONS

### Attitude Control System

A 180° Yaw maneuver was performed on day 029. Yaw Mode was entered at 23:30:10z and exited at 23:51:11z. TRMM is now flying in the -X forward position.

An addition to last week's activities for the Delta V maneuver: On Day 025 a new table #73 (T1998025_073_ASPR.TABLD_02) was built and loaded prior to the Delta V maneuver. This changed the FDC test #93 threshold for the Delta V pitch body momentum limit from 30 Nms to 40 Nms.

### Flight Data System (FDS)/Command & Data Handling (C&DH)

FS/Clock

The UTCF is being tracked during each event, with a current drift rate of approximately 1.5275 µsec/hr. The drift began the week with 1.8656 µsec/hr (Day 026). During the week the clock reached a maximum error of 828 µsec (on DOY 32). No Frequency Standard or UTCF adjustments have been performed. The UTCF will be adjusted when the clock error exceeds 900 µsec.

On Days 026, 029, and 030 the TC task of the S/C processor went to FLYWHEEL Mode for 3 seconds (continuing Anomaly #51). Investigation is showing that there have been nine occurrences of this anomaly since launch. Investigation to determine the cause continues. Note: this anomaly has been only seen on the S/C processor and has not impacted ACS, PSIB, or any of the instruments. (See Bruce Love's attached spreadsheet) S/C system tables #2 (T1998028_0002_SCPR.TABLD_01) and #3 (T1998028_0003_SCPR.TABLD_01) were loaded

with dwell information. Dwell was turned on at 21:16z Day 028 and "flywheel" data is being monitored during realtime events.

Still receiving Q Channel Restarts, though still not causing any loss of data.

Still receiving EDAC Single and Multi-bit errors.

Still receiving Bus retries on all buses.

Solid State Recorders

Data Storage operations were nominal. Due to a recorder overflow (Event Report #9), 58 seconds of TMI data (from 026/03:58:32z to 03:59:30z) and 1 minute 9 seconds of VIRS data (from 026/04:00:17z to 04:01:26z) were lost; 99.997% of data was recovered.

**Reaction Control Subsystem (RCS)**

The RCS performed nominally during this time period

**Power Subsystem**

The Power Subsystem performed nominally during this period.

The limits for WAB2FULV and WAB2HALV have been updated with the new database and are operational on all strings. The YL voltage limits for Battery 2 seen in the past few weeks are within the updated limits. Battery 1 and Battery 2 voltages were intentionally set to different limits prior to launch; the voltage limits are now identical.

**Electrical Subsystem**

The Electrical subsystem performed nominally during this period.

**Thermal Subsystem**

The Thermal subsystem operated nominally during this period.

**Deployables Subsystem**

The Deployables subsystem operated nominally during this period.

**RF/Communications Subsystem**

The most current LOF report showed that the Transponder-2 center frequency was approximately 1000 Hz behind the uplink frequency (Anomaly Report #54). On Day 011, Transponder-2 center frequency had been offset. Two non-coherent events were performed on Day 012 using Transponder-2 to verify the offset had executed correctly. The next event scheduled using Transponder-2 was scheduled on Day 21. Due to a file size limitation with the mp_listserv account (which has since been corrected), the LOF report was not received until the 29th, showing that the offset was no longer in place. Two more Transponder-2 events were scheduled

on Day 029 to investigate the anomaly. The frequency was offset 1000 Hz before the first event, and the resultant frequency was ~ 63 Hz behind the uplink frequency. The second event was measured at the original ~1000Hz behind again, proving that the offset was being lost. Investigation continues into the cause and whether this is the same behavior seen on XTE which would require the offset to be placed in each AOS sequence for Transponder-2 events.

## SPACECRAFT INSTRUMENTS

### CERES

The CERES Instrument performed nominally while executing its normal sequence of Crosstrack/Biaxial commanding.

| **Internal Calibrations** | | **Solar Calibrations** | |
|---|---|---|---|
| Date | Time | Date | Time |
| day 028, Jan 19 | 14:41:00z | day 028, Jan 19 | 12:47:30z |

### LIS

Instrument performed nominally.

### PR

Instrument performed nominally. Command requests were performed on Days 030 and 031. On Day 031 an Internal Calibration was performed at 03:00z. On Day 031 at 03:00z PR was placed in Healthcheck mode for 1 minute and 13 seconds to check the status of RAM/ROM for the SCDP.

### TMI

TMI performed nominally.

### VIRS

VIRS Cold Stage temperature has not returned to the 107K that it was prior to the CERES Deep Space Calibration maneuver. A thermal short is suspected to have developed between the cold stage and the intermediate stage due to the temperature delta between the two stages. When this occurred during Thermal Vac, warming up then re-cooling the cooler corrected the problem. Even with the warmer Cold Stage temperature, the VIRS instrument continues to function nominally. Evaluation is still continuing to determine if outgassing is necessary.

A VIRS command request was performed on Day 032 for a 3 minute Solar Calibration starting at 15:23:00z.

## GROUND SYSTEM

On day 026 an event was missed; 58 seconds of data for TMI and 1 minute 9 seconds of VIRS data were lost due to an overflow of recorders 5 and 6. (Event reports #9)

The first scheduled support using stored commanding (ATS/RTS) and mission planning software was successfully performed on day 027 for TDRS-7 (171).

The RAID's platter 2-A was rebuilt successfully on Day 030, but failed again on Day 031. Discussions are in progress to determine whether the problem is a system configuration problem or if the RAID needs to be replaced with a hard drive.

On day 028, commanding was lost for a support (Event report #11; TTR#19677). The NCC and WSGT aided the FOT in trouble-shooting the commanding problem during the event. After the event, NASCOM informed the FOT that the dedicated TRMM command line TR-1 had been taken off line for testing.

On day 028, commanding was lost for 5 minutes due to a WSC ground system problem (Event reports #12). WSC failed over to Return Chain A (from B). There was no impact to operations.

FORMATS release 8.4.0 and 8.4.0 patch 1 was delivered on Day 027.

The 6-0198 extension in the MOC continues to be down for incoming and outgoing calls.

The following Event reports were written during this period:

#9 Event not supported by FOT
#10 Late acquisition (1 minute)
#11 Unable to command (entire event) / TR-1 line pulled at NASCOM
#12 Unable to command (5 minutes) / Return Chain B to A failover at WSC

## ANOMALIES

The following Anomaly reports were written during this period:

#54: Transponder-2 loses it center frequency offset.

| Prepared by | Approved by |
|---|---|
| Candace Shoemaker | John Koenig, Jr. |
| TRMM Systems Engineer | FOT Manager |